



A.D. 1867, 16th MARCH. N^o 762.

SPECIFICATION

OF

JOHN GRUNDY.

COMBUSTION OF SMOKE.

LONDON:

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25, SOUTHAMPTON BUILDINGS, HOLBORN.



A.D. 1867, 16th MARCH. N° 762.

Combustion of Smoke.

LETTERS PATENT to John Grundy, of Wolstenholme Hall, in the County of Lancaster, for the Invention of “**CERTAIN IMPROVEMENTS IN APPARATUS APPLICABLE FOR THE PREVENTION OF SMOKE.**”

Sealed the 10th September 1867, and dated the 16th March 1867.

PROVISIONAL SPECIFICATION left by the said John Grundy at the Office of the Commissioners of Patents, with his Petition, on the 16th March 1867.

I, JOHN GRUNDY, of Wolstenholme Hall, in the County of Lancaster, do
5 hereby declare the nature of the said Invention for “**CERTAIN IMPROVEMENTS IN APPARATUS APPLICABLE FOR THE PREVENTION OF SMOKE,**” to be as follows:—

This Invention is designed for the introduction of heated air behind the fire-bars and then to supply a strong heat radiating surface, so that by the combination the gaseous and combustible portion of the smoke arising from
10 the furnace may be consumed in its passage over such surface.

The improvements consist in the use of a chamber made of “fire-clay” which is fixed on brickwork or supports in the position of and forming part of the ordinary “bridge” in the furnace flue, the fire-bars abutting up against such chamber. This chamber is made of fire-clay, and is enclosed on all sides,

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excepting a longitudinal slot at the bottom of the face or front where the fire-bars meet it, and the front edge of the bottom chamber has a series of grooves sloping from back to front to supply air from beneath the bars to the interior of the chamber, which air becomes heated by passing through the fire-clay chamber and escapes through perforations in the roof of the chamber 5 into the flue, where mixing with the smoke it assists in effecting the combustion thereof.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said John Grundy in the Great Seal Patent Office on the 16th September 1867.

10

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JOHN GRUNDY, of Wolstenholme Hall, in the County of Lancaster, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Sixteenth day of March, in the year of our Lord One thousand eight hundred and sixty-seven, in the thirtieth year of Her 15 reign, did, for Herself, Her heirs and successors, give and grant unto me, the said John Grundy, Her special license that I, the said John Grundy, my executors, administrators, and assigns, or such others as I, the said John Grundy, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the 20 term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**CERTAIN IMPROVEMENTS IN APPARATUS APPLICABLE FOR THE PREVENTION OF SMOKE**," upon the condition (amongst others) that I, the said John Grundy, my executors or administrators, by an 25 instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

30

NOW KNOW YE, that I, the said John Grundy, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement and accompanying Drawings (that is to say) :—

The Invention is designed for the introduction of heated air behind the 35

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fire-bars and there to supply a strong heat radiating surface, so that the combination of such air with the gaseous and combustible portions of the smoke arising from the furnace may be consumed in their passage over such surface.

5 The improvements consist in the use of a chamber made of "fire-clay" which is fixed on brickwork or supports in the position of and forming part of the ordinary "bridge" in the furnace flue, the fire-bars abutting up against such chamber. This chamber is made of fire-clay, and is enclosed on all sides, excepting a longitudinal slot at the bottom of the face or front where the
10 fire-bars meet it, and the front edge of the bottom of the chamber has a series of grooves sloping from back to front to supply air from beneath the bars to the interior of the chamber, which air becomes heated by passing through the fire-clay chamber and escapes through the perforations in the roof of the chamber into the flue, where mixing with the smoke it assists in effecting
15 the combustion thereof.

In order that the Invention may be better understood and explained in detail I have herewith attached a Sheet of Drawings illustrative of same.

Fig. 1 represents a longitudinal section of the flue of a steam boiler shewing the position of the furnace and "bridge," and the fire-clay chamber shewn
20 as forming part of such bridge; Fig. 2 represents a plan view of the same shewing the perforations on the top of the chamber for the exit of the heated air into the flue; and Fig. 3 is an end sectional view taken through the line A, B.

In Figs. 1, 2, 3, *a, a*, is the flue; *b, b*, are the fire-bars which bear on the
25 "bar bearer" *c* and abut against the fire-clay chamber *d* above the door *D*¹, which may be regulated by the rod and handle *e* so as to admit more or less air, as required, or the air may be admitted by sloping grooves or channels beneath the bars and instead of the door, but the door is preferable because adjustable. The passage of the air through the fire-clay chamber is indicated
30 by the arrows, and as the air becomes mixed with the smoke the gaseous and combustible portions thereof are ignited by the intense heat emanating from the fire-clay, and thus the carbonaceous parts of the smoke become perfectly consumed.

Having now described the nature of the said Invention, together with the
35 method of carrying the same into practical effect, I wish it to be distinctly understood that I claim the novel application, employment, and use of a chamber made of fire-clay either fixed on the "bridge" in flues of boilers, or so placed as to act therein as the bridge, whereby great heat is obtained and

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air supplied at such part of the flue for the combustion of smoke, as hereinbefore described, set forth, and fully illustrated in the Drawings attached.

In witness whereof, I, the said John Grundy, have hereunto set my hand and seal, this Thirteenth day of September, in the year of our Lord One thousand eight hundred and sixty-seven. 5

JOHN GRUNDY. (L.S.)

Witnessed by

JNO. HUGHES,

Clerk to Jno. Davies & Son,

Office for Patents,

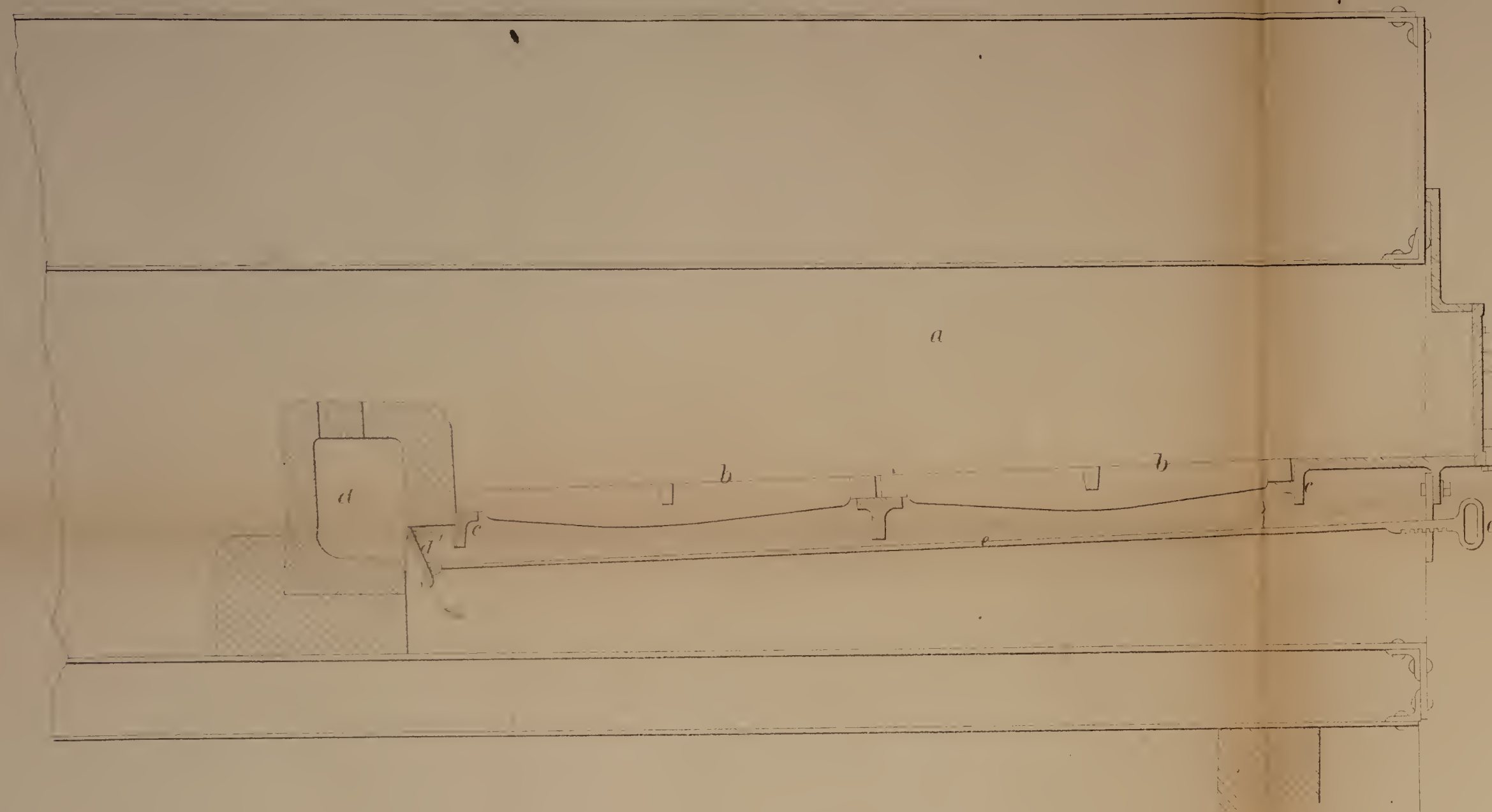
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A

FIG. 1.



B

FIG. 2.

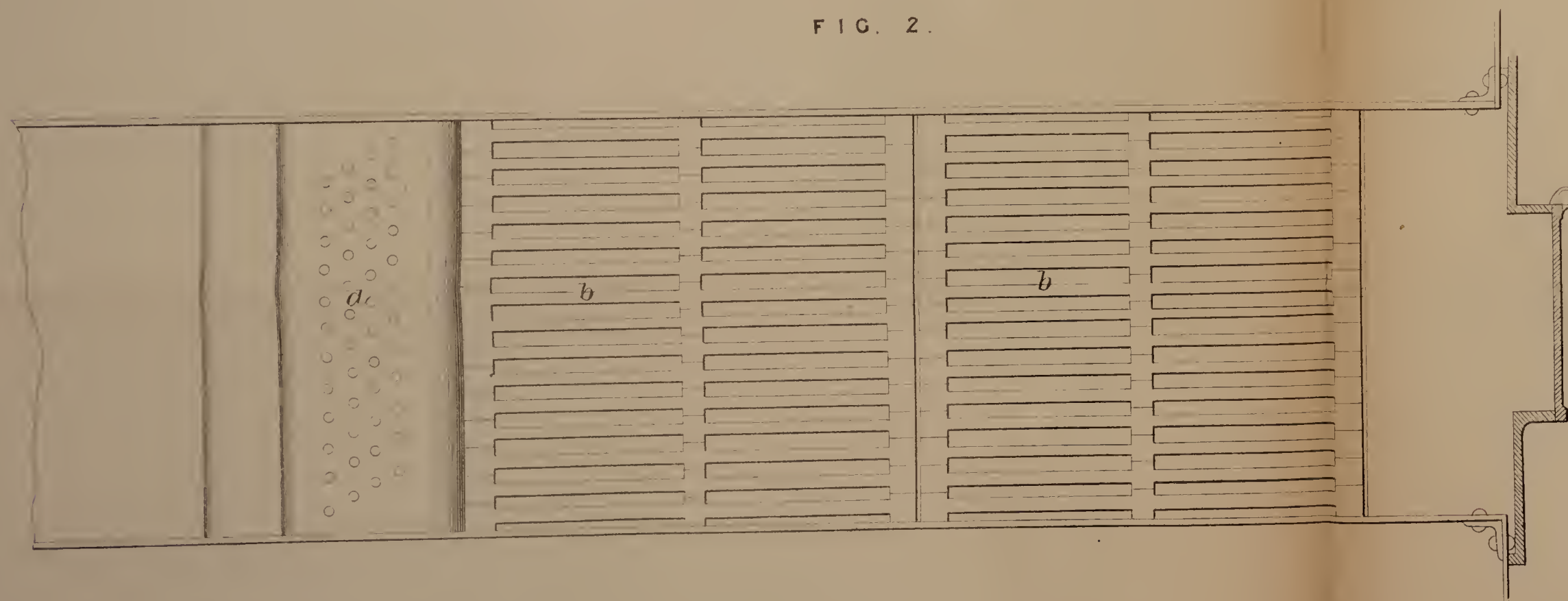
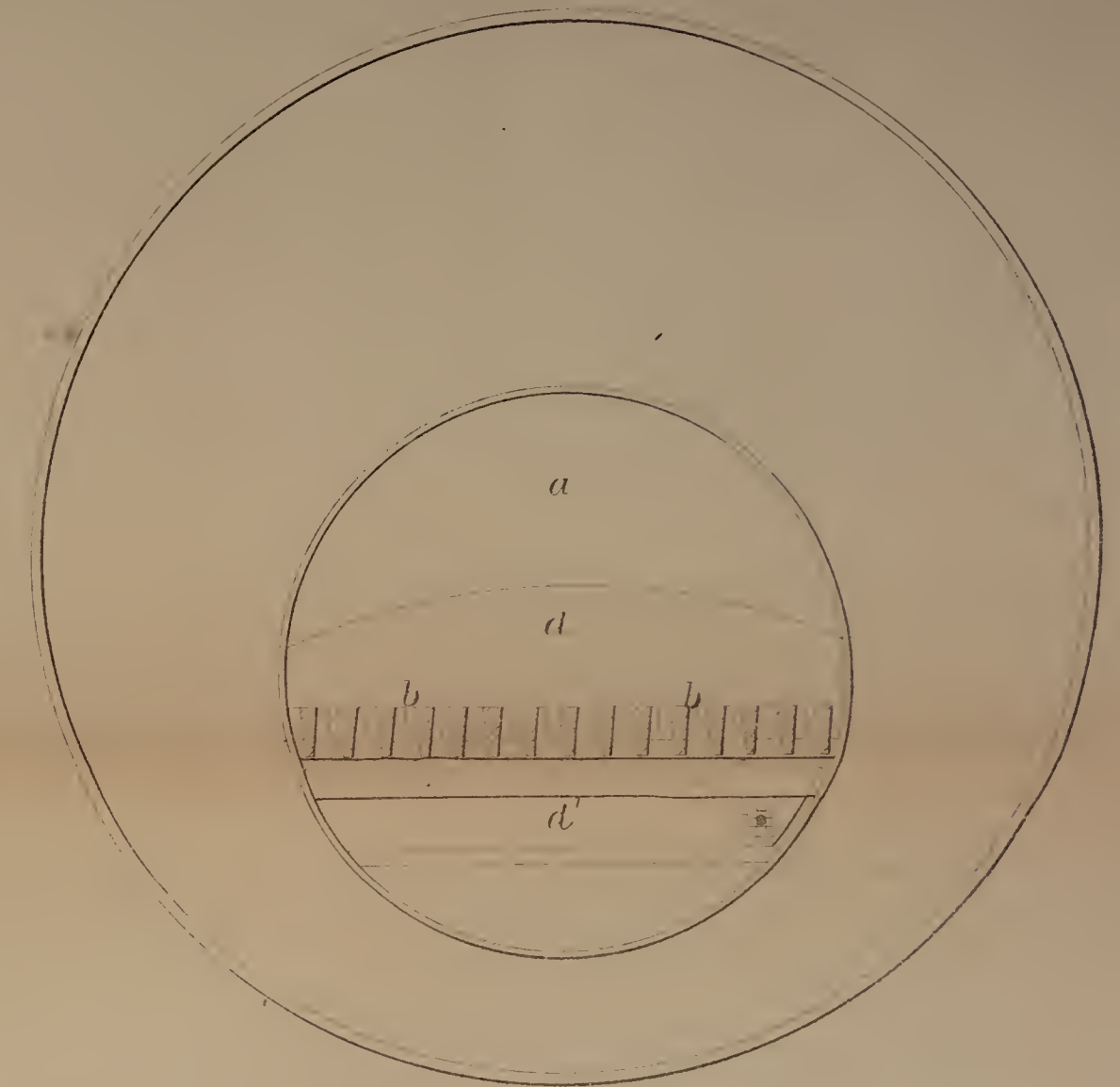


FIG. 3.



The filed drawing is not colored.

